



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

26384 7590 03/04/2004
NAVAL RESEARCH LABORATORY
ASSOCIATE COUNSEL (PATENTS)
CODE 1008.2
4555 OVERLOOK AVENUE, S.W.
WASHINGTON, DC 20375-5320

EXAMINER

PETKOVSEK, DANIEL J

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 03/04/2004

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,247	09/28/2001	William K. Burns	79,056	3033

TITLE OF INVENTION: HIGH POWER, LOW NOISE, SUPERFLUORESCENT DEVICE AND METHODS RELATED THERETO

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$300	\$1630	06/04/2004

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail**

**Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (703) 746-4000**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

26384 7590 03/04/2004

**NAVAL RESEARCH LABORATORY
ASSOCIATE COUNSEL (PATENTS)
CODE 1008.2
4555 OVERLOOK AVENUE, S.W.
WASHINGTON, DC 20375-5320**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,247	09/28/2001	William K. Burns	79,056	3033

TITLE OF INVENTION: HIGH POWER, LOW NOISE, SUPERFLUORESCENT DEVICE AND METHODS RELATED THERETO

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$300	\$1630	06/04/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
PETKOVSEK, DANIEL J	2874	385-027000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
- ☐ Publication Fee
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMIT THIS FORM WITH FEE(S)



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,247	09/28/2001	William K. Burns	79,056	3033

26384 7590 03/04/2004
NAVAL RESEARCH LABORATORY
ASSOCIATE COUNSEL (PATENTS)
CODE 1008.2
4555 OVERLOOK AVENUE, S.W.
WASHINGTON, DC 20375-5320

EXAMINER

PETKOVSEK, DANIEL J

ART UNIT	PAPER NUMBER
----------	--------------

2874

DATE MAILED: 03/04/2004

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 136 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 136 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

Notice of Allowability

Application No.

09/965,247

Examiner

Daniel J Petkovsek

Applicant(s)

BURNS ET AL.

Art Unit

2874

gwl

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment received November 25, 2003.
2. ☒ The allowed claim(s) is/are 1-28, 30, 31, and 33-39.
3. ☒ The drawings filed on 10 November 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 3 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No. <u>11/10/03</u> | 7 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

Brian Healy

Brian Healy
Primary Examiner

DETAILED ACTION

This office action is in response to the amendment received November 25, 2003. In accordance with the amendment, claims 1, 3, 14, 15, 17, and 19-23 have been amended, while new claims 25-39 have been added. The changes to the title and the specification have been acknowledged.

Information Disclosure Statement

1. The prior art documents submitted by Applicant in the Information Disclosure Statements filed on November 10, 2003, have been considered and made of record (note attached copy of form SB-08).

Drawings

2. The drawings were received on November 10, 2003. These drawings are acknowledged.

Allowable Subject Matter

3. Claims 1-28, 30, 31, and 33-39 are allowed over the relevant prior art. The following is an examiner's statement of reasons for allowance: the relevant prior art does not teach or reasonably suggest a device as claimed in which the input is a broadband optical input and this input is amplitude modulated, and then coupled to a polarization maintaining amplifier. The closest prior art of record (Adams et al. U.S.P. No. 6,490,070) does not teach or reasonably suggest a device as such that further comprises a broadband input along with an amplitude modulator.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

Art Unit: 2874

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

4. Applicant's arguments, see amendment, received November 25, 2003, with respect to a broadband input and amplitude modulator have been fully considered and are persuasive. The rejection of claims 1-24 to Adams et al. '070, Walker et al. '362, and Giles et al. '391 have been withdrawn, since these limitations are not taught or reasonably suggested by these references.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, with respect to modulation: U.S.P. No. 5,864,064 to Van Horn et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (571) 272-2355. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2800.



Daniel Petkovsek
February 5, 2004



Brian Healy
Primary Examiner

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Sally Ferrett (Reg. # 46,325) on February 5, 2004.

The application has been amended as follows:

1. (Twice Amended) A broadband superfluorescent device comprising:
 - a seed source that provides a broadband optical input;
 - an amplitude modulator configured and adapted to polarize and amplitude modulate the broadband optical input, the amplitude modulator being operably coupled to the seed source; and
 - a polarization maintaining (PM) amplifier operably coupled to the modulator;wherein the seed source broadband optical input is polarized in the modulator so that a polarized output is outputted therefrom;
- wherein the polarized optical output of the amplitude modulator is inputted to the PM amplifier; and
- wherein the PM amplifier is configured and arranged so as to amplify an intensity of the polarized optical output from the modulator and to output an amplified polarized optical output therefrom.

Art Unit: 2874

3. (Twice Amended) The broadband superfluorescent device of claim 2, wherein said light source capable of producing light at a preselected wavelength is a pump diode.

19. (Twice Amended) A broadband superfluorescent device comprising:

a seed source adapted and configured to provide a broadband optical input wherein the seed source includes a light source capable of producing light at a preselected wavelength and a first optical fiber doped with a preselected gain material operably coupled to said light source;

an amplitude modulator operably coupled to said seed source wherein the broadband optical input from the seed source is polarized and noise is reduced in the modulator; and

a polarization maintaining amplifier operably coupled to said amplitude modulator, wherein the polarization maintaining amplifier comprises:

a polarizing beamsplitter;

a second light source capable of producing light at a preselected wavelength operably coupled to said beamsplitter;

an optical fiber doped with a preselected gain material operably coupled to said second light source; and

a retro-reflecting orthogonal polarization converter operably coupled to said optical fiber;

wherein light entering and exiting the polarization maintaining amplifier is maintained in a polarized condition; and

wherein an intensity of the light entering the polarization maintaining amplifier is increased.

Art Unit: 2874

21. (Twice Amended) A method for producing a polarized, broadband optical output comprising the steps of:

providing a broadband optical input;

polarizing and amplitude modulating said broadband optical input in an amplitude modulator to produce polarized light;

amplifying the polarized light using a polarization maintaining amplifier to produce a broadband optical output;

sampling a portion of the broadband optical output and converting the sampled portion to an electrical signal proportional to the signal intensity of the output; and

controlling the transmissivity of said amplitude modulator via said electrical signal produced from said sampled portion.

22. (Twice Amended) A method for reducing the relative intensity noise in an optical output of polarized, broadband light comprising the steps of:

providing a broadband optical input;

polarizing and amplitude modulating said broadband optical input in an amplitude modulator to produce polarized light;

amplifying the polarized light using a polarization maintaining amplifier;

sampling a portion of the optical output and converting the sampled portion to an electrical signal proportional to the signal intensity of the output; and

controlling the transmissivity of said modulator via said electrical signal.

29. (Canceled)

32. (Canceled)

Version with markings to show changes made:

1. (Twice Amended) A broadband superfluorescent device comprising:

a seed source that provides a broadband optical input;

an amplitude modulator configured and adapted to polarize and amplitude modulate the [polarized] broadband optical input, the amplitude modulator being operably coupled to the seed source; and

a polarization maintaining (PM) amplifier operably coupled to the modulator;

wherein the seed source broadband optical input is polarized in the modulator so that a polarized output is outputted therefrom;

wherein the polarized optical output of the amplitude modulator is inputted to the PM amplifier; and

wherein the PM amplifier is configured and arranged so as to amplify an intensity of the polarized optical output from the modulator and to output an amplified polarized optical output therefrom.

3. (Twice Amended) The broadband superfluorescent device of claim [1] 2, wherein said light source capable of producing light at a preselected wavelength is a pump diode.

19. (Twice Amended) A broadband superfluorescent device comprising:

a seed source adapted and configured to provide a broadband optical input wherein the seed source includes a light source capable of producing light at a preselected wavelength and a first optical fiber doped with a preselected gain material operably coupled to said light source;

Art Unit: 2874

an amplitude modulator operably coupled to said seed source wherein the broadband optical input from the seed source is polarized and noise is reduced in the modulator; and

a polarization maintaining amplifier operably coupled to said amplitude modulator, wherein the polarization maintaining amplifier comprises:

a polarizing beamsplitter;

a second light source capable of producing light at a preselected wavelength operably coupled to said beamsplitter;

an optical fiber doped with a preselected gain material operably coupled to said second light source; and

a retro-reflecting orthogonal polarization converter operably coupled to said optical fiber;

wherein light entering and exiting the polarization maintaining amplifier is maintained in a polarized condition; and

wherein an intensity of the light entering the polarization maintaining amplifier is increased.

21. (Twice Amended) A method for producing a polarized, broadband optical output comprising the steps of:

providing a broadband optical input;

polarizing and amplitude modulating said broadband optical input in an amplitude modulator to produce polarized light;

amplifying the polarized light using a polarization maintaining amplifier to produce a broadband optical output;

Art Unit: 2874

sampling a portion of the broadband optical output and converting the sampled portion to an electrical signal proportional to the signal intensity of the output; and

controlling the transmissivity of said amplitude modulator via said electrical signal produced from said sampled portion.

22. (Twice Amended) A method for reducing the relative intensity noise in an optical output of polarized, broadband light comprising the steps of:

providing a broadband optical input;

polarizing and amplitude modulating said broadband optical input in an amplitude modulator to produce polarized light;

amplifying the polarized light using a polarization maintaining amplifier;

sampling a portion of the optical output and converting the sampled portion to an electrical signal proportional to the signal intensity of the output; and
controlling the transmissivity of said modulator via said electrical signal.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (571) 272-2355. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 2874

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2800.



Daniel Petkovsek
February 5, 2004



Brian Healy
Primary Examiner